ABSTRACT OF THE DISCLOSURE

Electrostatic discharge (ESD) protection structures utilizing bipolar conduction are disclosed. The structures each include a parasitic p-n-p bipolar transistor (102); some of the disclosed embodiments include this transistor within a silicon-controlled-rectifier (SCR) type of ESD protection structure. A p+ doped region (116, 216, 316, 416, 516) is disposed at a surface of an n-well (112, 212, 312, 412, 512) overlying a location (115, 215, 315, 415, 515) that receives both the n-well (112, 212, 312, 412, 512) implants and also the p-well (213, 313, 413, 513) implants. Preferably, the well implants are designed to provide retrograde doping profiles. The number of net impurities is reduced, and thus the base Gummel number is lowered, at the compensated well portion (112', 212', 312', 412', 512'), resulting in improved gain for the vertical bipolar device.